
Module 3: Command Responsibilities

MODULE PREVIEW

The Laboratory is committed to managing the potential risks associated with operations by implementing its Conduct of Operations Program (PRD102-02, *LANL Conduct of Operations Program*) as described by the requirements and guidelines in DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*. Conduct of operations is a program for and philosophy of working in a formalized, disciplined manner with the aim of achieving excellence in operations. The basic goals of the Laboratory's Conduct of Operations Program are to improve the way we do business, to emphasize accountability and individual responsibility, and to document and formalize all work.

It is the responsibility of line management to implement the Conduct of Operations Program in all areas of the Laboratory but it is only achieved when all workers practice what is contained in applicable standards and procedures.

To implement the Conduct of Operations Program in compliance with DOE Order 5480.19, the Laboratory must meet the following three requirements:

- The Laboratory shall use DOE Order 5480.19 and its attachment in the review and development of existing and proposed directives, plans or procedures relating to Conduct of Operations at the Laboratory.
- A graded approach shall be used to ensure that the depth of detail required and the magnitude of resources expended for operations are commensurate with the risk of each operation, its programmatic importance, and potential environmental, safety, and/or health impact.
- Conformance with the requirements of the order shall be documented (matrix of applicability).

Implementation contributes to the efforts of conducting the Laboratory operations in a formal, disciplined manner; fosters a cultural change toward excellence in all operations; and expands the sense of responsibility in all workers beyond their individual



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[http://
eshtraining.lanl.gov/](http://eshtraining.lanl.gov/)

[http://apollo.osti.gov/
html/techstds/
standard/
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operation or organization to the Laboratory as a whole. Line management and worker commitment to the Conduct of Operations Program will result in a continual improvement in the way the Laboratory does business.

The topics discussed in this module will help equip managers and supervisors with the information they need to implement a sound conduct of operations program. More information about conduct of operations is available from ESH-13 (more detailed training), DOE Order 5480.19, and ESH-OIO (Operational Integration Office). The WWW addresses in the margins will show locations of the documents (DOE Orders, Lab Procedures, etc.) discussed, where available. DOE has written *Guides to Good Practices* for most of the following sections. The WWW address used to locate these guides is in the margin.

OPERATIONS ORGANIZATION AND ADMINISTRATION

Know what needs to be done and who is going to do it.

How operations are organized and administered establishes a high level of quality and performance. This is accomplished through effective implementation and control of operations activities.

A high level of performance in operations is accomplished by:

- establishing written goals, objectives, roles, responsibilities, operating standards, procedures, and instructions;
- communicating operating standards to the working level;
- providing sufficient resources (staff, equipment, funding) to complete assigned tasks;
- ensuring personnel are well trained;
- monitoring (inspections, audits, reviews, investigations, self-assessments) performance in operations;
- evaluating potential safety hazards and identifying personal protective equipment, system alignment (valves, switches, and component position), and the need for independent verification (critical systems or operations); and
- holding workers and supervisors accountable for their performance in conducting activities (ES&H and operational).

OPERATING PRACTICES

Know exactly what to do and what not to do.

Well documented Standard (or Safe) Operating Procedures (SOPs) or Operating Instructions (OIs) enable workers to know exactly what to do and what not to do at each facility to ensure safe and reliable operations. Managers and supervisors should ensure that:

- responsible personnel are promptly notified of all changes in facility status, abnormalities, or difficulties encountered in performing assigned tasks;
- facility safety programs are established and followed;
- inspections are scheduled and documented (include status of equipment, abnormal conditions, visual and audible safety systems, building deficiencies, safety hazards, housekeeping, and preventive maintenance);
- workers follow good personnel protection practices to maintain exposure as low as reasonably achievable (ALARA);
- workers promptly report hazards or protection deficiencies;
- workers do not ignore an unusual reading, rather than take prompt action; and
- power or process rate changes are approved.

CONTROL AREA ACTIVITIES FOR DOE FACILITIES

Act professionally and limit distractions.

All activities in controlled areas should be conducted in a manner that achieves safe and reliable facility operations. This also applies to facilities with operations centers or other critical monitoring. Managers and supervisors should ensure the following in these areas:

- access is controlled;
- administrative guidance that describes a worker's responsibilities is established and the worker's behavior is professional;
- timely response and all reasonable actions to address and correct problems are taken;
- the administrative workload of workers is minimized so as not to interfere with their primary duties; and

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- administrative guidance that describes authorization to operate equipment is established.

COMMUNICATIONS

Keep all informed of what is happening.

To achieve safe and efficient operations, reliable audible and visual communication systems for transmission of operating and emergency information should be established. Communication systems include face-to-face instructions, telephone messages, radio communications, public address (PA) announcements, alarms, horns, sirens, bells, and lights. Managers and supervisors should ensure that:

- communication systems are established to ensure that all workers are promptly alerted to emergency situations;
- public address systems have administrative controls that identify the proper use of the system;
- procedures are established for communication during non-routine or abnormal situations;
- portable radios and cellular phones do not interfere with other communication or operating equipment;
- only abbreviations and acronyms approved by management are used in facility communications; and
- oral instructions and communications are clear, concise, and effective.

ON-THE-JOB TRAINING (OJT)

Work closely with those new to the job.

OJT is that portion of a training program where the worker receives training within the job environment with as much hands-on experience as possible. Trainees should be supervised and controlled to avoid mistakes in operations during training and to assure training effectiveness. Managers and supervisors should ensure that:

- training programs have clearly defined instructional objectives and that workers complete these programs and attain necessary knowledge and skills levels;

- OJT is conducted by qualified instructor/evaluators in accordance with the *Training Staff Qualification/Certification* standard LS113-15.1;
- the instructor/evaluator monitors the trainee closely and remains in a position to intervene or assume control if necessary;
- training programs, including appropriate qualification/certification programs that are required before performing operations, are approved;
- training records are maintained; and
- training activities are immediately suspended during unanticipated or abnormal events, accident conditions, or whenever the operations personnel or OJT instructor/evaluator believes it is necessary to ensure safe and reliable facility operation.

INVESTIGATION OF ABNORMAL EVENTS

Find out what went wrong.

A program for the investigation of abnormal events should ensure that facility events are thoroughly investigated to assess the impact of the event, to determine the root cause of the event, to ascertain whether the event is reportable to DOE in accordance with DOE O 151.1 (*Emergency Management System*), and to identify corrective actions to prevent recurrence of the event. These topics are covered in Module Five: *Problem Analysis and Decision Making*.

Non-reportable events may justify investigation at the discretion of supervision or by procedure. In general, any event (good or bad) whose analysis and documentation would benefit the organization (or others) should be critiqued and investigated.

NOTIFICATIONS

Let appropriate people know what is happening or has happened.

A program must be in place that identifies those potential events that require notification. Any event or condition that could be deemed reportable should be identified for occurrence categorization. The program must be written to ensure that employees understand their responsibility for notification including identification of events and time requirements for reporting. These actions include immediate

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response for individual safety and the notification of management. Lists of names, phone numbers, and alternates should be provided and notifications documented.

Procedures should be developed to address appropriate notifications and should include the following elements:

- Who:* Specific responsibilities for notifications and identification of primary and alternate personnel to be notified for various situations;
- What:* Identification of events and conditions requiring notifications;
- When:* Establishment of time requirements for notifications that are consistent with the facility emergency plan;
- How:* Definition of record keeping requirements that documents the reason for notifications, the time of notifications, and the person notified.

CONTROL OF EQUIPMENT AND SYSTEM STATUS

Keep current and maintain control.

Line managers should establish procedures to ensure that equipment and systems are maintained according to design operational requirements and that the operators know the status of equipment and systems. Administrative control programs to handle configuration changes resulting from maintenance, modifications, and testing activities should also be established. The following should also be done:

- a formal mechanism is established to authorize changes in operating status;
- a review is performed to ensure that all aspects of the installation of equipment or systems were completed correctly, alignment checklists were used, and that an Operational Readiness Review (ORR) was done if necessary;
- locks and tags are used when and where needed;
- administrative controls should be established to identify and document compliance with requirements of operational limits;
- procedures to ensure that equipment/system deficiencies are identified and reported are established;

- all activities on equipment that are important to safety, or changes that control indications or alarms are authorized and documented;
- equipment is tested following maintenance/repair and is independently verified;
- the status of alarms (control panel and local) is documented;
- procedures are established for use of temporary modifications to equipment or systems; and
- a system is established to ensure that operating personnel have available and use the latest engineering drawings, technical manuals, procedures, and specifications.

LOCKOUTS AND TAGOUTS

Protect yourself and others.

Lockout/tagout is a procedure for ensuring that workers do not cause harm to themselves, others, or equipment when working on systems or equipment that store energy. OSHA requires the establishment of a lockout/tagout program. It is imperative that individuals working within the Laboratory recognize this program, its requirements, and warning labels. Lockout/tagout training is provided by ESH-13. ESH-5 can assist in implementing the Laboratory's Lockout/Tagout program.

The lockout/tagout program provides for independent verification of the removal from service and the restoration to service of safety-related and other facility equipment. The program exercises appropriate control over lockout/tagout preparation, approval, placement, and removal; provides for adequate documentation; and is consistent with the requirements of 29 CFR 1910. LP106-01 (*Lockout/Tagout for Control of Hazardous Energy Sources for Personnel Safety*) and LP106-02 (*Lockout/Tagout for Control of Equipment and Systems Status*) are the Laboratory procedures for lockout/tagout.

<http://iosun.lanl.gov:2001/htmls/policy/esh/eshprgm.html>

INDEPENDENT VERIFICATION

Check things carefully.

Independent verification is the act of checking critical/noncritical operations and programs. It recognizes that any worker, no matter how proficient, can make a mistake.

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An independent verification program provides a high degree of confidence that activities are performed safely and reliably. It assures that the positions of components such as valves, switches, and circuit breakers are correct. To be independent, the integrity of the checks must be maintained by minimizing interaction between the personnel operating components and those performing the independent verifications.

Components that require independent verification include safety and programmatic systems/equipment that are critical to safe and reliable performance. Written guidelines that determine when independent verification should be performed should be included in facility procedures.

LOGKEEPING

Track who, what, where, when, and how.

Formal records or logbooks contain a record of facility and equipment status as required, and provide an accurate history of facility operations. Logs are sequences of events or functions performed for specific operations. This guidance should also include work books, ledgers, experimental records, and other documentation required while conducting work/research in the facility.

This includes documentation of actions taken, activities completed, transfer of information among workers, and data necessary for event reconstruction. Information should be recorded promptly and legibly. A review schedule for the logs should be established to ensure they are adequately maintained and that workers are aware of the information contained in the logs.

Guidance should be provided that defines the information to be recorded and the disposition of completed logs. During emergencies and abnormal or unexpected events as much significant information as possible should be logged, but log keeping should not take precedence over controlling and monitoring the facility.

OPERATIONS TURNOVER

Do not leave work and do not start work without knowing what is going on.

Operation shift turnovers or reliefs during a shift should be guided by a checklist and ensure that workers receive accurate information about the overall status of the facility.

Before starting work, workers should conduct a comprehensive review of appropriate written (logs, records) and visual (equipment, control boards) information. Managers and supervisors should ensure that:

- as a minimum, checklists of job factors for turnover are established and that these checklists are signed or initialed by incoming workers and/or supervisors;
- depending on operating procedures, a walkdown is done of facility status using observation of system lineups, switch positions, lighted enunciators, chart recorders, etc.;
- all items noted on the turnover checklist are explained;
- a crew briefing is conducted as required; and
- all “during the shift” reliefs receive the same formality as shift turnover.

FACILITY OPERATIONS ASPECTS OF CHEMISTRY AND UNIQUE PROCESSES

Coordinate with all others involved in the job.

Management is responsible for ensuring that monitoring takes place for important aspects of operations involving chemistry and unique processes.

All systems/processes which, under abnormal operation, could significantly impact health, safety, or the environment should be identified. In addition, those systems/processes that cannot be monitored directly should be reviewed for applicable sampling and analysis. The frequency of the sampling and the operating limits of the system/process should also be established and documented. Unique processes might be defined as those that require sampling and have defined operational limits.

Managers and supervisors should define each worker’s specific responsibilities with respect to process control including sampling and analysis. Individuals responsible for sampling, conducting

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analyses, and reviewing data should be knowledgeable of and be capable of correctly interpreting chemical parameters, operational hazards, operating limits, and emergency or off-normal responses. At LANL these individuals may report to a different group or division. This situation requires timely communication between responsible personnel from both the operating and support organizations.

REQUIRED READING

Read up on what is happening.

Managers and supervisors are responsible for determining those documents that pertain to a worker's job assignment and should be included in the worker's training requirements.

Proper use of a required reading program ensures that workers read and understand important information relevant to their jobs. If workers do not understand the material, appropriate questions should be directed to supervisors.

A formal method should be established to inform workers of new or modified written procedures and other documents that impact their work practices. Examples of these documents include Laboratory policy statements, administrative and operating procedures, operating experience information, site/facility specific procedures, equipment operating manuals, Material Safety Data Sheets (MSDSs), and SOPs. A required completion date should be designated for reading each document. Documentation of required reading should be maintained to ensure completion and allow verification. The required reading documentation should be periodically reviewed to ensure and verify that all workers have completed readings by the required dates.

TIMELY INFORMATION EXCHANGE

Know the changes.

A means for operations management to communicate short-term information and administrative instructions to workers should exist. Real time information and instructions might be necessary to supplement procedures on a short-term basis. Examples are special operations, administrative directions, special data-collection requirements, plotting process parameters, and other similar short-term matters.

Information and instructions intended to be permanent should be incorporated into the procedure by a formal-procedure-change or revision-and-approval process. All short term changes should be clearly written, dated, and available. Information should be segregated into those that require daily review and those that need to be read less frequently.

Directions should be provided that ensure information remains current. Supervisors should conduct periodic reviews to identify and remove information that is no longer applicable.

OPERATIONS PROCEDURES

Know how things should be done.

Procedures are a key factor affecting worker and process performance. Operations procedures should be sufficiently detailed so workers can perform the required functions without direct supervision. The facility policy on use of procedures should be clearly understood by all workers. Properly controlled and readily available procedures promote use and ensure that operational activities will be conducted in the manner intended. Periodic review and feedback of information are essential to ensure that procedures in use provide the best possible instructions for the activity involved.

Procedures should be developed for all anticipated operations, processes, and tests and for potential abnormal or emergency situations. New and revised procedures should be verified for correctness and approved by the accountable manager before their use. New procedures should be validated by walk-throughs in the facility or by operation on a facility-specific simulator to ensure workability.

A controlled copy of all procedures should be maintained at the work site for worker reference and at other appropriate locations for normal and emergency conditions. Workers should be knowledgeable of and comply with procedures that apply to their actions. One exception to the policy, workers may take reasonable action during emergency conditions to place the facility in a safe condition, and to protect equipment, personnel, and public safety.

OPERATOR AID POSTINGS

Keep needed information on hand.

Facility operator aids (information posted for personnel use) should provide information useful to workers in performing their duties. Operator aids may come in many forms: copies of procedures, system drawings, information tags, and graphs. A program should be established to ensure that posted operator aids are current, correct, and useful, and are approved by appropriate supervisory personnel.

Operator aids are posted technical specifications that assist workers in accomplishing specific tasks, but should not be used in lieu of approved procedures.

Posted operator aids should not obscure or interfere with proper operation of instruments, equipment, or controls and should be laminated when possible and securely fastened to the associated equipment. Operator aids should be reviewed periodically to ensure they are still correct and necessary for use.

EQUIPMENT AND PIPING LABELING

Know what you are looking at.

A well-established and maintained equipment labeling program should help reduce worker and maintenance errors. A labeling system will also help ensure that OSHA requirements are met.

Facility and programmatic equipment and piping must be labeled in accordance with OSHA regulations and standards set forth by the Laboratory. Special consideration should be given to major equipment and piping associated with hazardous operations. In addition to piping and equipment, the following system components should be labeled:

- valves
- switches
- circuit breakers
- fuse blocks
- instruments and gauges
- busses and motor controls
- equipment cabinets

- room doors
- emergency equipment
- fire protection equipment.

Guidance should be obtained from facilities engineering (FSS Division) before any major labeling activities are initiated. FSS Division and facility/process personnel should work closely to identify systems/components requiring labeling, ensure that items are identified correctly, and schedule the labeling of facility systems.

Supervisors should be informed when labels are missing so that corrective actions can be accomplished in a timely manner. Approved labels can be identified and ordered from the Laboratory *ES&H Sign Catalog*.

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MODULE SUMMARY

The topics covered in this module equip managers and supervisors with information they need to help implement a sound conduct of operations program. In order for an organization's operations to run smoothly, managers and workers need to know how operations are organized and who is responsible for administering those operations. Managers and employees must understand all of the operating practices within each area of their responsibility. These areas include operating practices pertaining to communications, on-the-job training, investigating abnormal events, controlling and verifying equipment and system status, and keeping proper records including well documented shift change information. It is important for managers to understand all chemistry and unique processes in order to carry out proper facility operations in these areas.

Managers also need to ensure that everyone stays current through a formal program, perhaps required reading, and they need to encourage good follow through by exchanging timely information. This goes hand in hand with keeping operating procedures as current as possible. Finally, managers and supervisors must ensure that equipment and piping is labeled properly and that all operator aid postings are readable and located as close as practical to the equipment they are associated with.

A well run conduct of operations program is the responsibility of everyone at LANL. A strong commitment by management and all workers to the conduct of operations program will result in continued improvement in the way the Laboratory does business.





SELF ASSESSMENT

Scenario

The text in the scenario below is based on a real occurrence reported in the Operating Experience Weekly Summary (94-42), Office of Nuclear Safety. There was no spread of radiological contamination, no injury to personnel, and no danger to the public or the environment resulting from the problems identified.

Operators were tasked with moving fuel assemblies from a cask shipped from a foreign research reactor to a water-filled storage basin at a US facility. During the unloading, operators had trouble grasping the tops of the fuel assemblies. One element from an assembly fell to the floor of the storage basin. The Operators stopped work and notified operations management. The Operations Manager permitted the operators to retrieve the dropped element and complete the unloading, even though their procedure did not provide instructions for recovery actions. Two days later the facility management became aware of the problem and stopped fuel handling activities. Investigators determined several violations including those listed in the next section.

Discussion/Questions

Operators failed to enter pertinent information covering the fuel handling problems and corrective actions into facility logs and failed to pass that information on to the next shift.

- (1) As part of good Conduct of Operations, logkeeping is essential for careful documentation of actions taken, activities completed, equipment status, and any other data necessary for accurate history of facility operations. During emergencies or abnormal or unexpected events, such as the one described above, the workers should have
- a. recognized that controlling and monitoring the facility was their first responsibility, and then ensuring update of the log
 - b. refused to perform any more operations until facility management was notified
 - c. ensured all information about the problems was passed on to the next shift
 - d. all of the above
 - e. a and c only

Operations management did not tell the facility management about the problems for several days.

(2) The Operations Manager in the above scenario appeared to take responsibility for the recovery operation but did not promptly notify his facility management of the dropped element. Assuming the procedure did not include notification protocol, the revised procedure should include all but which of the following:

- a. identification of events deemed reportable
- b. time requirements for reporting
- c. consequences of failure to report
- d. names, phone numbers, and alternates to be notified

Operations personnel completed their unloading without a formal engineering and criticality evaluation.

(3) Facility operating practices should include clear operating instructions and procedures. Line managers should ensure that:

- a. responsible personnel are promptly notified of all changes in facility status, abnormalities, or difficulties encountered in performing assigned tasks
- b. workers follow good personnel protection practices to maintain ALARA
- c. facility safety programs are established and followed
- d. all of the above

(4) Line managers should establish procedures to ensure that equipment and systems are maintained according to design operations requirements and that operators know the status of equipment and systems. It is also important that line management

- a. establish a formal mechanism to authorize changes in operating status
- b. ensure that procedures do not include use of temporary modification to equipment or systems
- c. determine that procedures are established that ensure normal equipment or system deficiencies are identified and reported
- d. establish administrative controls to identify required documentation

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Answers

1-e; 2-c; 3-d; 4-b